

FIG. 1

CUSTOM MOTOR OIL – SUPPLY OPTIONS

CUSTOMER GIVES INPUT AT:	CUSTOMER PROVIDES INPUT BY USING:	CUSTOM OIL BLENDED AT:	CUSTOM OIL SHIPPED TO:	OIL CHANGED AT:
<ul style="list-style-type: none"> • HOME • KIOSK IN STORE • QUICK LUBE • PLACE OF WORK • MOBILE OIL CHANGE FACILITY • OTHER 	<ul style="list-style-type: none"> • COMPUTER TERMINAL INTERNET E-MAIL • TELEPHONE • FAX • ORDER FORM: MAIL-IN DIRECT • STANDING ORDER • OTHER 	<ul style="list-style-type: none"> • CENTRAL FACILITY • AT STORE • AT QUICK LUBE • REGIONAL/ LOCAL FACILITY • MOBILE OIL CHANGE FACILITY • OTHER 	<ul style="list-style-type: none"> • HOME • STORE • QUICK LUBE • GARAGE/SERVICE STATION • MOBILE OIL CHANGE FACILITY • OTHER 	<ul style="list-style-type: none"> • HOME • STORE • QUICK LUBE • GARAGE/SERVICE STATION • MOBILE OIL CHANGE FACILITY • PLACE OF WORK • OTHER

ANY COMBINATION OF THESE COULD BE USED

FIG. 2

Questionnaire for Custom Motor Oil
Selection – Vehicle/Driver Background Information

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Name: _____ 9 _____ Address [include zip code] _____

10 Model Year of Vehicle [2000] ▼▲ 16

11 Engine miles [+100,000] ▼▲ 14 15

12 Type of vehicle: 16 15 14

- Car [ALFA ROMEO] ▼▲
- Light Truck [CHEVY PICKUP] ▼▲
- Heavy Truck [MACK] ▼▲
- Farm Equipment [John Deere] ▼▲
- Construction Equipment [Caterpillar] ▼▲
- SUV ▼▲

13 Car Maintenance Habits

- [] Under-hood maintenance
- [] Wash car
- [] Clean/Shine tires
- [] Vacuum interior
- [] Clean upholstery

13 Significant Automotive Uses

- [] Children carrier
- [] Camping
- [] Remote office

- next screen -

FIG. 3

**Questionnaire for Custom Motor Oil
Selection – Vehicle Driving/Use Requirements**

17 → Type of driving
(sliding scales)
City/highway _____ / _____
Distances (Winter?, Summer?) _____ / _____
In which vehicle will you use oil _____
How long do you store oil _____
During which season will oil be used _____
Other items available for oil change (**Go to Figure Supplement**)
Model year, etc.
Garage (yes) (no)
Maintenance regimen
 Transmission fluid
 Brake fluid and brakes
 Typical oil drain interval (5000 miles) ▼▲

ENTER

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FIG. 4

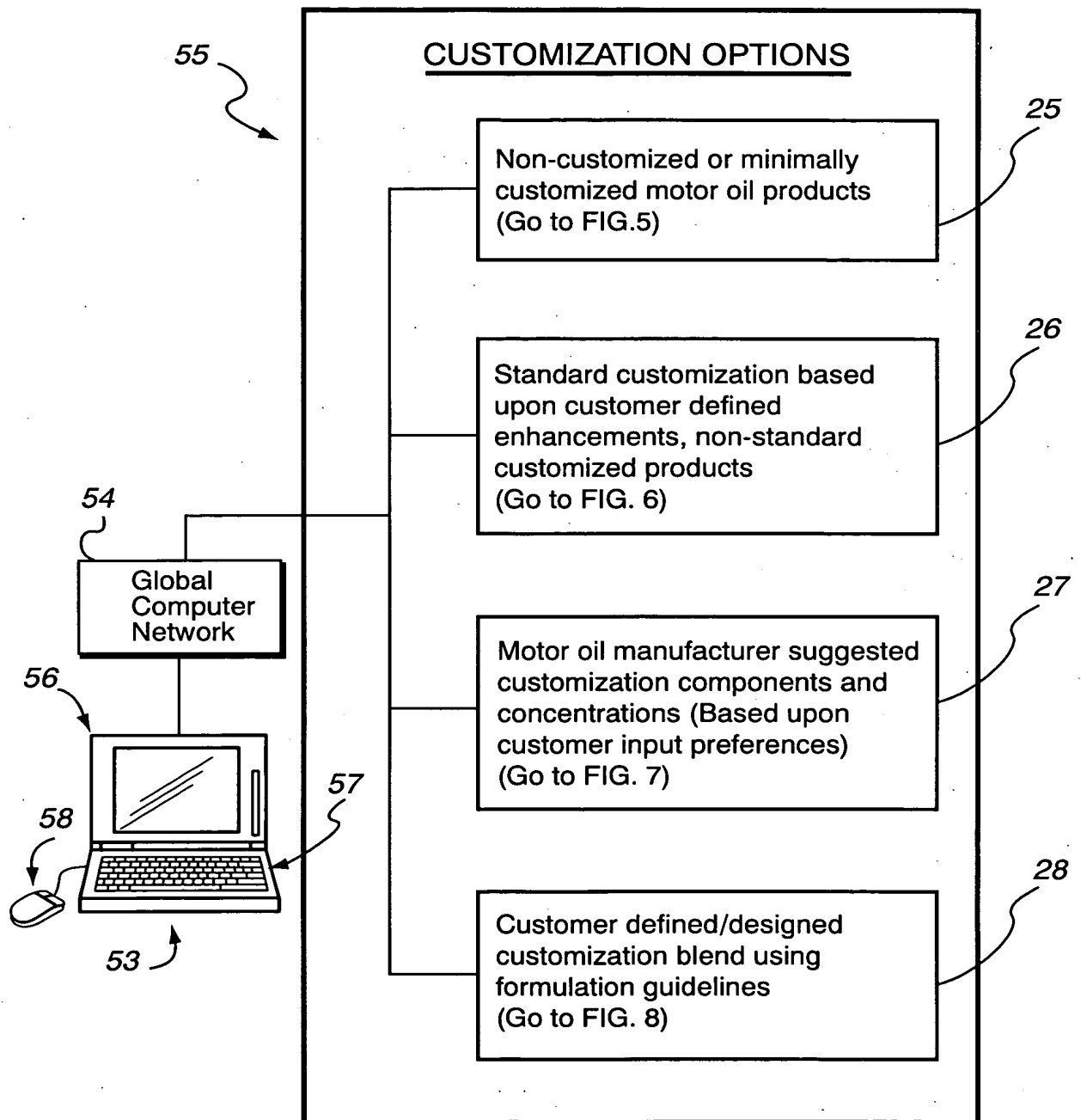


FIG. 5a

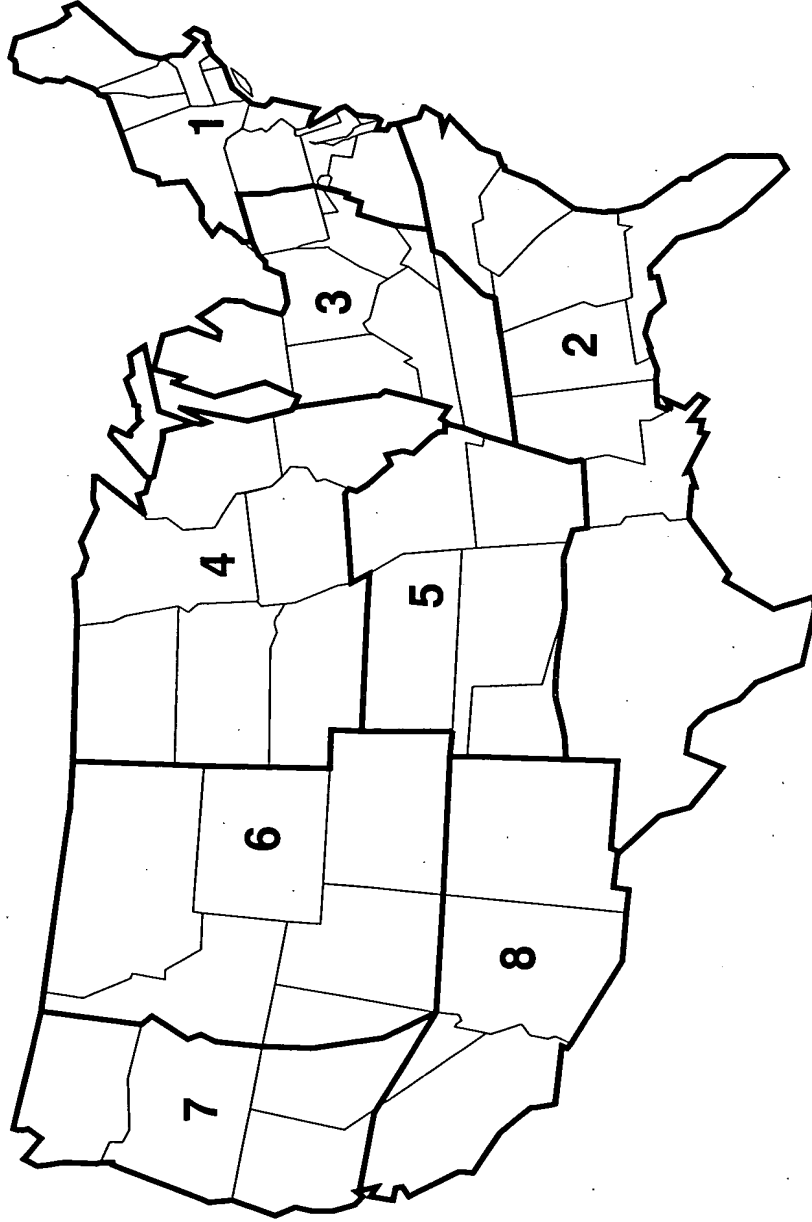


FIG. 5b

Tutorial entitled "Fundamentals for choosing motor oil for your engine." ☐

Choosing your motor oil
Customer choice

Motor oil manufacturer's recommendation (based upon region from which order originated), See below:

Your input data indicates your oil selection will be used in region XXX.

Is this correct? Yes ☐ No ☐

If Yes, go to 23. If No, go to 22.

Refer to Region map, designate the region in which the oil will be used or for which region you wish the oil to be specified, Region ▼▲

Go to 23

Fill month ▼▲

Drain month ▼▲

Price range

Product type:

Base oil Synthetic
 Semi-synthetic
 Mineral

Grade Mono-grade ☐
 Multi-grade ☐

Product Strongly Recommended (choose one from list according to rank order of preference) ▼▲

Product Recommended (choose one from list according to rank order of preference) ▼▲

Product Not Recommended (do not choose one from this list) ▼▲

CONTINUE

RESET VALUES

FIG. 6

Based upon your responses to the lubricant profile questionnaire, you reside in Region 6 (from Figure 5a – upper mid-West) and the engine oil will be used starting October, for about 4 months. It is recommended that your engine oil be custom blended to provide:

Enhanced low temperature startability

Enhanced engine cleanliness

Moderately enhanced high temperature viscosity

Do you wish an oil with:

Enhanced low temperature startability

5 degrees F below conventional 10W-30

10 degrees F below conventional 10W-30 (Recommended level)

20 degrees F below conventional 10W-30

Enhanced engine cleanliness

10 percent greater than conventional 10W-30

30 percent greater than conventional 10W-30 (Recommended level)

50 percent greater than conventional 10W-30

Enhanced high temperature viscosity

0.5 higher than conventional 10W-30

1.0 cSt higher than conventional 10W-30 (Recommended level)

1.5 cSt higher than conventional 10W-30

2.0 cSt higher than conventional 10W-30 (Note your viscosity will exceed that for a 10W-30 grade and some credentials may not be retained -

Should we proceed?: Yes No)

Continue Yes No (if yes, select one):

Return to questionnaire: Yes

Return to menu: Yes

Return to choosing magnitude of the various options: Yes

Continue to [Figure 7] for customer selected options: Yes

Go to [Figure 12]

52

53

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FIG. 7

Choose from among the suggested customization enhancements below.

Enhanced low temperature startability

- 5 degrees F below conventional 10W-30
- 10 degrees F below conventional 10W-30
- 20 degrees F below conventional 10W-30

Enhanced high temperature viscosity

- 0.5 cSt higher than conventional 10W-30
- 1.0 cSt higher than conventional 10W-30
- 1.5 cSt higher than conventional 10W-30
- 2.0 cSt higher than conventional 10W-30 (Note your viscosity will exceed that for a 10W-30 grade and some credentials may not be retained - Should we proceed?: Yes No)

Enhanced fuel economy

- 20% greater than minimum target level
- 30% greater than minimum target level (Recommended level)
- 40% greater than minimum target level
- 50% greater than minimum target level (Levels beyond this level not recommended).
- Should we proceed?: Yes No
- 70% greater than minimum target level
- 100% greater than minimum target level

Enhanced engine cleanliness

- 20% greater than minimum target level
- 30% greater than minimum target level
- 40% greater than minimum target level
- 50% greater than minimum target level
- 100% greater than minimum target level

Extended drain capability

- Increase beyond 5,000 mile drain interval: 5% to 200% ▲▼

61

62

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FIG. 7(Cont'd)

Wider product viscosity range

0W-30

0W-40

5W-40

5W-50

10W-50

10W-60

Other: _____

63

Enhanced wear protection

20% greater than minimum target level

30% greater than minimum target level

40% greater than minimum target level

50% greater than minimum target level

100% greater than minimum target level

Other Enhancements

63

64

Use of novel or non-conventional component:

You may choose to introduce new experimental products or non-conventional additives in your motor oil blend. If you wish to proceed, choose yes and proceed below.

Yes

Polytetrafluoro ethylene (PTFE)

Stabilized molybdenum disulfide

Stabilized vegetable oils

Special ester base stocks

65

Continue Yes No (if yes, select one):

Return to questionnaire: Yes

Return to menu: Yes

Return to choosing magnitude of the various options: Yes

66

Continue to next customization screen, [Figure 8] for customer defined component recommendations. Yes

FIG. 8

Enhanced engine cleanliness

For optimum response and results it may be necessary to adjust both detergent and dispersant components.

Detergent modification

Go to [Figures 9-11] (for performance/concentration data)

Change the detergent component level (Refer to appropriate additive response correlation Chart, Figures 9-11): -50% to 200% ▲▼

Add a second detergent component (Refer to appropriate additive response correlation Chart, Figures 9-11, Recommend using 30% more detergent component with high TBN (Total Base Number)): 0% to 200% ▲▼

Dispersant modification

Go to [Figures 9-11] (for performance/concentration data)

Change the dispersant component level (Refer to appropriate additive response correlation Chart, Figures 9-11) -50% to 200% ▲▼

Add additional high molecular weight dispersant (Refer to appropriate additive response correlation Chart): 0% to 200% ▲▼

Enhanced fuel economy

Go to [Figures 9-11] (for performance/concentration data)

Change the Friction Modifier component level (Refer to appropriate additive response correlation Chart): 0% to 200% ▲▼

Add a second Friction Modifier component (Refer to appropriate additive response correlation Chart. Motor oil manufacturer recommends using 30% of Friction Modifier S, Note: using component which will darken the oil). 0% to 200% ▲▼

Enhanced low temperature startability

Enhanced high temperature viscosity

Extended drain capability

FIG. 8(Cont'd)

Wider product viscosity range

Enhanced wear protection

Enhanced control of oil oxidation

Use of novel or non-conventional component:

You may choose to introduce new experimental products or non-conventional additives in your motor oil blend. If you wish to proceed, choose yes and proceed below. Yes

Polytetrafluoraethylene (PTFE)

Stabilized molybdenum disulfide

Stabilized vegetable oils

Special ester base stocks

69

70

Continue Yes No (if yes, select one:)

Return to questionnaire: Yes

Return to menu: Yes

Return to choosing options: Yes

[Go to Figure 12]

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FIG. 9

Boil-Off Improvement

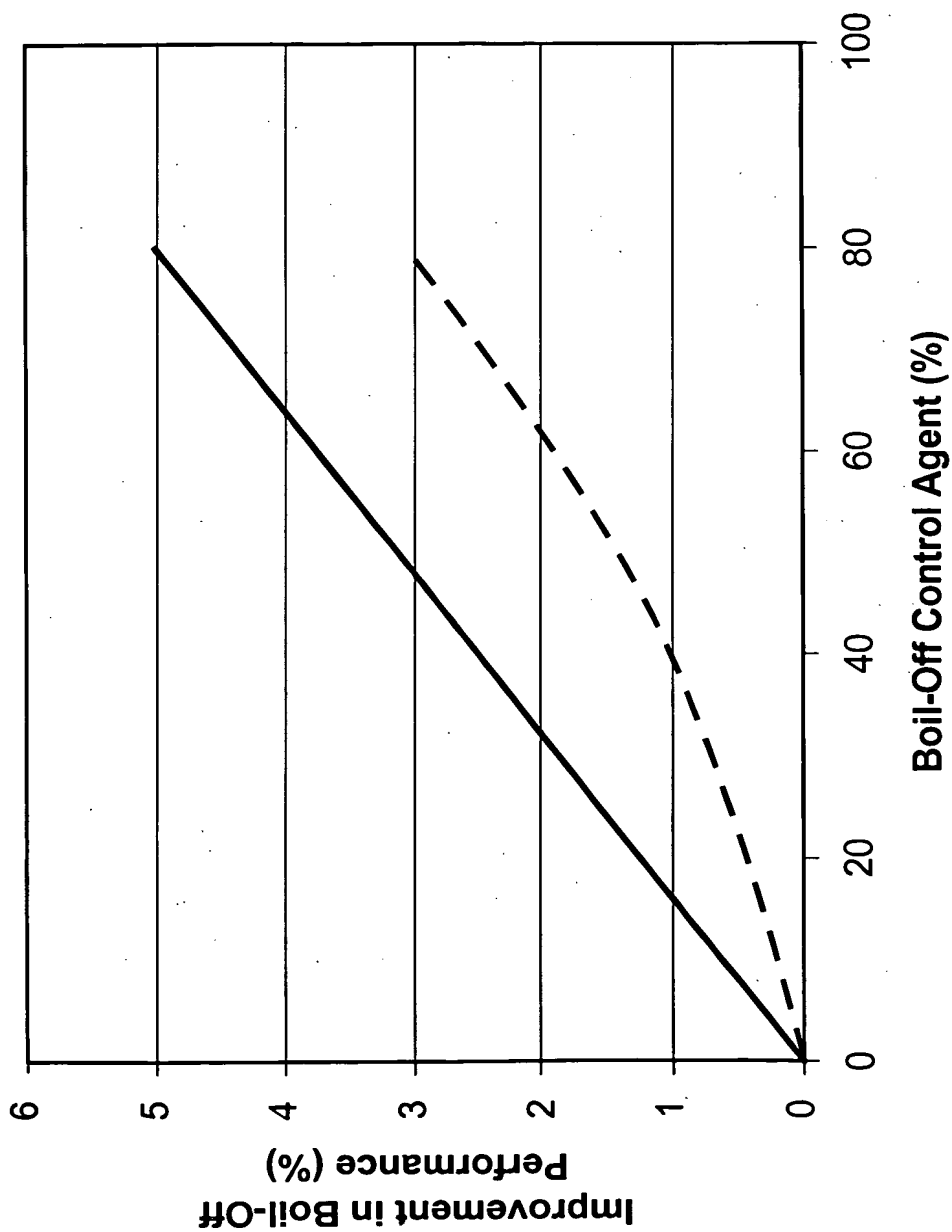


FIG. 10

Piston Cleanliness Improvement

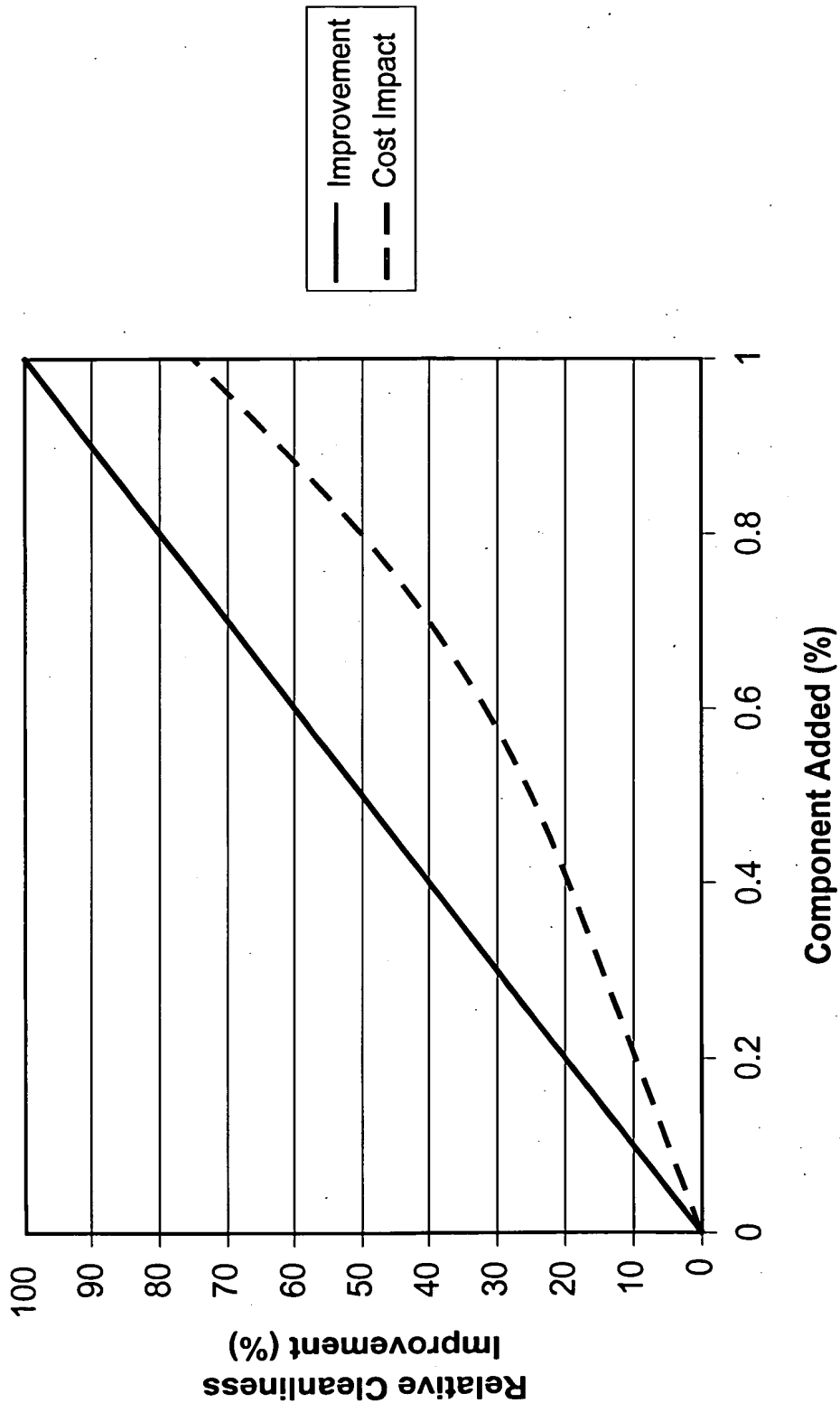


FIG. 11

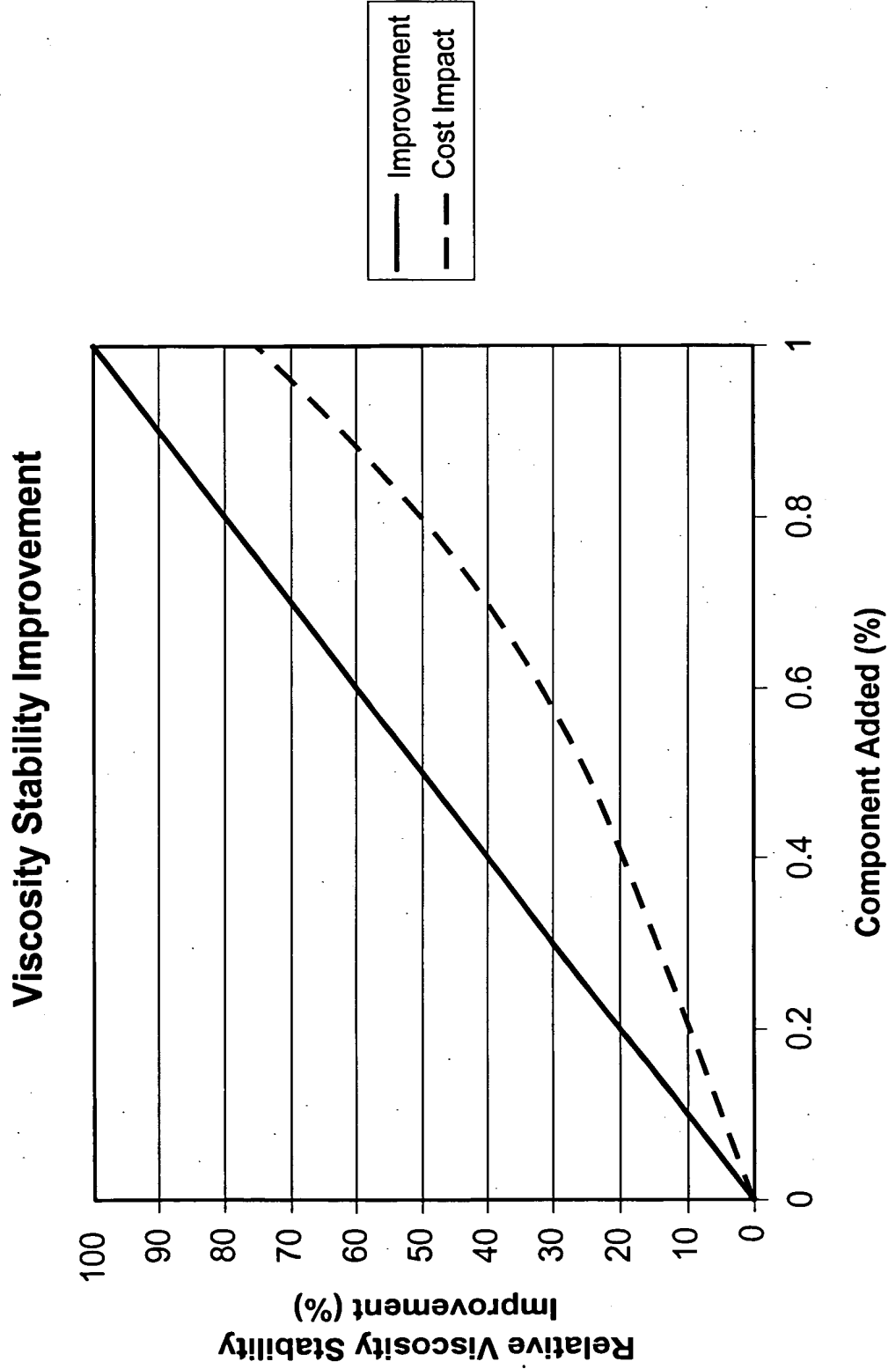


FIG. 12

FINAL MOTOR OIL SELECTED

[X]

[X]

[X]

Based upon the criteria you entered above, namely:

Fuel Economy

[X] Maximum without adversely affecting wear and cold weather properties

Cold Temperature Properties

[X] Maximum without adversely affecting fuel economy and wear properties

Wear Properties

[X] Maximum even if base motor oil changes - recommend one

28'

30'

32'

We will design a motor oil with 10W-30 motor oil which has been uptreated and formulated with 0.3% molybdenum dithiocarbamate fuel economy additive to increase fuel economy by up to 40%, 0.25% fumarate ester additive to improve the low temperature pumpability by about 10 degrees F and with 0.17% zinc dialkylidithiophosphate anti-wear additive to reduce wear by up to 50%. If this is acceptable, select the number of gallons below and click on ADD TO SHOPPING CART. If not acceptable click on RETURN TO THE MAIN MENU, or BACK.

QUANTITY

1 gallon

40

ADD TO SHOPPING CART

BACK

RETURN TO MAIN MENU

41

42

43

FIG. 13 SHOPPING CART/CHECK-OUT

Your shopping cart contains the following items:

#1: 10 gallons 10W30 motor oil which has been uptreated and formulated with 0.3% molybdenum dithiocarbamate fuel economy additive to increase fuel economy by up to 40%, 0.25% fumarate ester additive to improve the low temperature pumpability by about 10 degrees F and with 0.17% zinc dialkyldithiophosphate anti-wear additive to reduce wear by up to 50%.

PRICE: \$ XXX.XX

#2:

#3:

RETURN TO MAIN MENU TO DESIGN OTHER OILS

PROCEED TO FIGURE 16 FOR OTHER PRODUCTS/SERVICES

BACK

To check out, fill in the relevant information below, or your customer number, and click on SEND

Customer No.: _____

Name:

Type of payment: ☐ VISA ☐ Discover

Card No.

Expiration Date

Exact name on card:

Billing address on card

Shipping address for this order:

Name:

Company (if any):

Address:

City

State:

Zip:

Shipping type: ☐ Normal UPS (approximately \$Z/gallon)

☐ Overnight courier (approximately \$ZZ/gallon)

☐ Click here if you have entered a customer number and you want the product shipped to your default shipping address

SEND

[Thank you for your order. This product will be shipped by NORMAL UPS within TEN business days from today, and your DISCOVER card has been billed \$XXX.XX for the oil, and \$YY.YY for shipping, for a Total of \$CCC.CC]

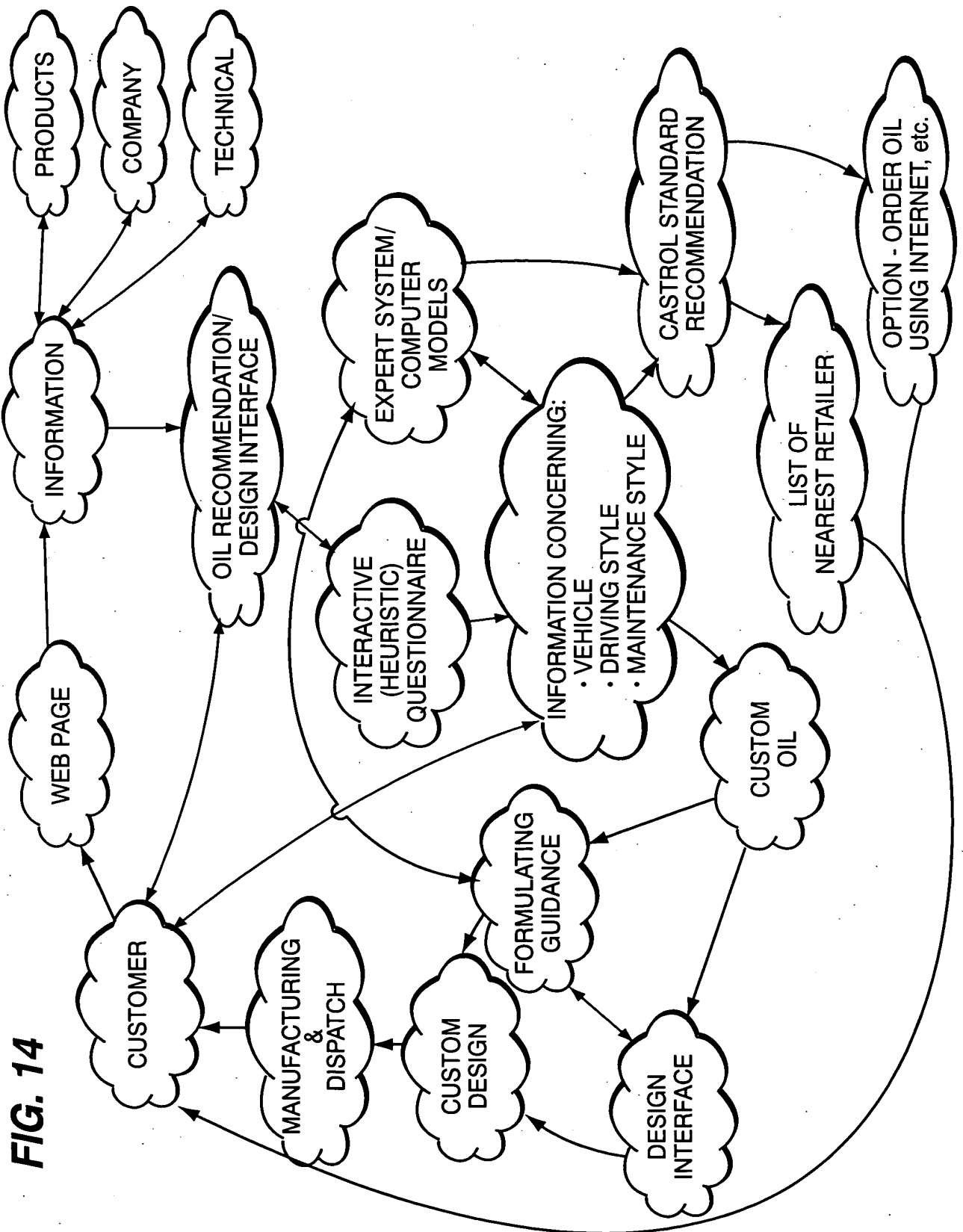


FIG. 15**EXAMPLE OF SIMPLIFIED MIXING SCHEME FOR CUSTOMIZED OIL**

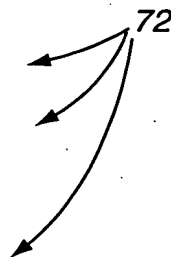
COLUMN 1	COLUMN 2	COLUMN 3	COLUMN 4	COLUMN 5
	CUSTOMER DESIRES BASELINE PERFORMANCE	CUSTOMER DESIRES FUEL ECONOMY PERFORMANCE	CUSTOMER DESIRES ANTIWEAR PERFORMANCE	CUSTOMER DESIRES BOTH FUEL ECONOMY AND ANTIWEAR PERFORMANCE
% BASELINE MOTOR OIL	100	80	80	60
% OF 5X MAX. BLEND CONC. OF FUEL ECONOMY ADDITIVE DISSOLVED IN BASELINE MOTOR OIL; BLEND A	0	20	0	20
% OF 5X MAX. BLEND CONC. OF ANTIWEAR ADDITIVE DISSOLVED IN BASELINE MOTOR OIL; BLEND B	0	0	20	20
TOTAL %	100	100	100	100

FIG. 16

Automotive Products To Enhance Driving Experience

Maintenance Items

Filters
Spark plugs
Brake fluids
Gear fluids
Transmission fluid Grease
Other



Car Care Products

Car wash
Wiper fluid
Tire gloss
Touch-up paint
Other

Travel Service

Weather advisory
Travel Directions and Tips
Maps
Other

Merchandising

Posters
Apparel
Designer products
Other

Add to shopping cart

73

Return to main menu

74